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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/929,703	08/13/2001	Ulrich Friedrich	4219	8886
21553	7590	06/28/2005	EXAMINER	
FASSE PATENT ATTORNEYS, P.A.			AGHDAM, FRESHTEH N	
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			2631	

DATE MAILED: 06/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/929,703	Applicant(s) FRIEDRICH, ULRICH	
	Examiner Freshteh N. Aghdam	Art Unit 2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-12, 14-28, 30 and 31 is/are rejected.
- 7) ☒ Claim(s) 7, 13 and 29 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on ____ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 02/23/2005 have been fully considered but they are not persuasive. The following is the examiner's response to applicant's argument:

Applicant's Argument: In page 21, applicant argues, the claimed invention is not taught or suggested by Piirainen; and thus the amended claim 1 and the newly added claim 16 recite "assigning a different modulation index respectively to plural information symbols and then modulating the information symbols onto the carrier signal in accordance with the different modulation indices."

Examiner's Response: Applicant's claims 1 and 16 recite "assigning a different modulation index respectively to plural information symbols and then modulating the information symbols onto the carrier signal in accordance with the different modulation indices." Hwang et al (IEEE JOURNAL ON SELECTED AREAS IN COMMUNICATIONS, VOL. 7, NO. 9, DECEMBER 1989) teaches this limitation (Hwang et al, Pg. 1450, Col. 2; Pg. 1451, Col. 3 and 4).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claim 5, the variable "x" is not defined; and therefore the claim is indefinite.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 16-21, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Piirainen (WO 99/33237), and further in view of Hwang et al (IEEE JOURNAL ON SELECTED AREAS IN COMMUNICATIONS, VOL. 7, NO. 9, DECEMBER 1989).

As to claims 1, 16-19, and 28, Piirainen teaches a method for transmitting signals comprising assigning different modulation indices to signals with different data rates (Pg. 2, Lines 6-17); modulating a signal using frequency modulation. Piirainen is silent about assigning a different modulation index to each of the information symbols. Hwang et al teaches assigning two different modulation indexes respectively to two symbols (+1 and -1) during any ith signaling interval; and transmitting the modulated signal through the antenna 224 (Fig. 2). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of Piirainen with Hwang et al in order to provide an

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additional degree of freedom in choosing indices with better performance (Hwang et al, Pg. 1450, Col. 2; Pg. 1451, Col. 3 and 4)..

As to claim 20, Piirainen teaches information symbols with different data rates. One ordinary skill in the art would clearly recognize that frequency and period are related; therefore, different data rate means different durations (Pg. 4, Lines 17-20).

As to claim 21, Piirainen teaches information symbols having different modulation indexes (Pg. 4, Lines 30-34).

Claims 2, 24, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Piirainen and Hwang et al, further in view of Scott (US 5,832,022).

As to claims 2, 24, and 25, Piirainen and Hwang et al teach all the subject matters claimed above, except for alongside the frequency and phase, the amplitude is modulated as the characteristic physical variable of the carrier signal. Scott, in the same field of endeavor, teaches various CPM (Continuous Phase Modulation) techniques including Superimposed Quadrature Amplitude Modulation wherein the amplitude is modulated as the characteristic physical variable of the carrier signal (Col. 1, Lines 12-20). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of Scott with Piirainen and Hwang et al in order to modulate a signal before transmission.

Claims 3, 10, 27, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Piirainen and Hwang et al, further in view of Beale et al (US 5,946,293).

As to claims 3 and 27, Piirainen and Hwang et al teach all the subject matters as claimed above, except for the information symbols being transmitted successively.

Beale et al, in the same field of endeavor, teaches transmitting successive information symbols (Fig. 2, Col. 1, Lines 50-55). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of Beale et al with Piirainen and Hwang et al in order to transmit and receive signals applying digitally.

As to claims 10 and 30, Piirainen and Hwang et al teach all the subject matters claimed above, except for the first transceiver controls the second transceiver by at least one control signal being a clock signal assigned to an information symbol. Baele et al teaches transmitting a plurality of symbols in a frame (Fig. 2) wherein the synchronization channel is added at the beginning of each frame to be transmitted to control the reception unit (Col. 1, Lines 58-67). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of Beale et al with Piirainen and Hwang et al in order to control the receiver both in time and carrier frequency with the stream of synchronization symbols (Col. 1, Lines 65-67).

Claims 14 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Piirainen, Hwang et al, and Beale et al, further in view of Ricci et al (6,463,039).

As to claims 14 and 31, Piirainen and Hwang et al teach all the subject matters claimed above, except for the second transceiver has no electronic circuit for clock generation and is a passive transponder that uses the clock signal for local clocking. Ricci et al, in the same field of endeavor, teaches providing clock signal and power to the passive transponder (Col. 9, Lines 66 and 67; Col. 10, Lines 1-3). Therefore, it

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would have been obvious to one of ordinary skill in the art to combine the teaching of Rucci et al with Piirainen, Hwang et al, and Beale et al in order to provide clock signal to the passive transponder for synchronization purposes.

Claims 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Piirainen and Hwang et al, further in view of the admitted prior art.

As to claim 22, Piirainen teaches having different modulation indices being selected based on the information received from the second device (i.e. the base station) see (Pg. 3, Lines 33-35). Piirainen is silent about the second device detects and decodes the information symbols and the modulation indices assigned to. The admitted prior art teaches receiving, detecting, and decoding the transmitted information symbols in the receiver (Pg. 2, Lines 9-11 and 18-21). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of the admitted prior art with Piirainen and Hwang et al in order to receive and process a signal in the receiver.

As to claim 23, Piirainen and Hwang et al teach all the subject matters claimed above, except for the information symbols having the different modulation indices assigned to represent different types of the information items. The admitted prior art teaches information symbols represent different types of information items (Pg. 1, Lines 12; Pg. 2, Lines 15 and 16). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of the admitted prior art with Piirainen and Hwang et al in order to transmit data digitally.

Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Piirainen, Hwang et al, and Scott, further in view of Landolsi (US 6,570,842).

As to claim 26, Piirainen, Hwang et al, and Scott teach all the subject matters claimed above, except for the modulation index being defined as the ratio of the maximum amplitude and a consistent amplitude modulation swing of the respective information signal. Landolsi defines the amplitude modulation index as the ratio of the maximum amplitude and a consistent amplitude modulation swing of the information signal (Col. 7, Lines 20-25). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of Landolsi with Piirainen, Hwang et al, and Scott in order to compute the modulation indexes.

Allowable Subject Matter

Claims 7, 13, and 29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As to claims 7 and 29, the prior art of record fails to teach a method wherein not only the modulation indices but also respective period lengths of modulation periods differ respectively from one another to define additional information symbols.

As to claim 13, the prior art of record fails to teach a method wherein the modulation index of the control signal is smaller than the modulation index of a data signal formed by others of the information symbols.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Freshteh N. Aghdam whose telephone number is (571) 272-6037. The examiner can normally be reached on Monday through Friday 9:00-5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Freshteh Aghdam
June 22, 2005


MOHAMMED GHAYOUR
SUPERVISORY PATENT EXAMINER

